29 March, 2010 **Global Monitoring Division Hot Items**

The Sun Sets and the Six Month Winter Begins; South Pole, March 20, 2010

Global Monitoring Division - **ESRL-GMD**
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Two NOAA/ESRL personnel are wintering over at the U.S. Amundsen-Scott South Pole Station and in coming days they will watch the final glimmer of the sun sink below the horizon as the polar plateau plunges into 6 months of darkness. It is difficult to predict the exact time the last glimmer of the sun will be seen at South Pole each season due to atmospheric refraction. The time of the equinox and official sunset time was 13:32 EDT (17:32 GMT) on March 20, 2010. Historically, the sun may be visible for up to two days beyond the equinox and will then remain below the horizon until approximately September 22, 2010 when it will rise again for 6 months. For the 2010 austral winter two NOAA/ESRL personnel will work at the South Pole Baseline Atmospheric Research Observatory, Johan Booth and LT(jg) Nicholas Morgan. During the winter months temperatures can drop as low as -75C (-100 F) at the geographic pole. These cold winter temperatures make it impossible for the ski-equipped C-130 aircraft to land at South Pole isolating the winter "polie" population from the rest of the world for 8 months. Only when the surface air temperatures reach -50C (-58F) next October will the planes be able to safely land at South Pole again. Staff venturing outside during the winter at South Pole are often treated to brilliant auroras (known as Aurora Australis in the southern hemisphere) and some of the most amazing night sky views on the planet due to the high altitude 9,305 ft. (2,837 m), low moisture, and few douds at the South Pole. To view the dwindling twilight at South Pole, go the live NOAA/ESRL web camera at http://www.esrl.noaa.gov/gmd/obop/spo/livecamera.html.

Background: NOAA/ESRL and its predecessor organizations have conducted a wide range of baseline atmospheric measurements at the South Pole since 1957. In 1962 total ozone profiles were initiated with Dobson spectrophotometers (45 years), surface ozone measurements began in 1975 (30 years), and balloon borne ozonesonde profiles have been flown weekly since 1986 (21 years and over 1,200 flights). These continuous measurements have provided valuable data for studying the annual chlorofluorocarbon mediated South Pole "Ozone Hole." In addition, the longest atmospheric carbon dioxide greenhouse gas record on earth (started in 1957) has been collected at the South Pole and pre-dates the better known Mauna Loa carbon dioxide record by one year as shown in, http://www.esrl.noaa.gov/gmd/obop/spo/observatory.html.

Significance: Continuous long term records of a wide range of atmospheric variables measured at the South Pole, where the mantra is "the cleanest air on earth", have documented a wide range of changes in the composition, chemistry, and radiative balance of the atmosphere over the Antarctic continent since the inception of the measurements. Many of these changes are related to mankind's combustion of fossil fuels, the effluents of which can collect in the atmosphere, and from the release of industrial and household chemicals into the atmosphere. It is expected the NOAA/ESRL Atmospheric Research Observatory will remain in operation for countless sunsets into the future.

More information: **http://www.esrl.noaa.gov/gmd/obop/spo/livecamera.html**

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